Chapter 9.1: Department of Atmospheric Science

Background

The Department of Atmospheric Science was founded in 1962 within the College of Engineering as a result of growing interest in the atmospheric role in hydrology. The Department supports a graduate MS and PhD program, currently consisting of 16 faculty and 90 graduate students. The Department is committed to excellence in teaching, research, and service as it pursues its mission of preparing the next generation of leaders to meet the weather and climate challenges facing the world now and in decades to come. Atmospheric Science hosts several centers or institutes: the Cooperative Institute for Research in the Atmosphere (CIRA), the Center for Multiscale Modeling of Atmospheric Processes (CMMAP), the NSF CSU-CHILL National Radar Facility, the DOD Center for Geosciences, and the Colorado Climate Center. The Department has been repeatedly selected as a CSU Program of Scholarly Excellence and was recently ranked by the National Research Council in a 2010 National Academies report in first place among departments of atmosphere and ocean sciences in the nation.

Strategic Planning Areas

Teaching and Learning

Objective: To provide the highest quality educational experience to graduate students by offering a comprehensive, rigorous curriculum and effective instruction; and by providing opportunities for personal growth through mentoring, training in research, writing, oral presentations, and teaching.

Goal: Recruit and retain world-class faculty

Strategies:

- In 2011-12: recruit 2-3 faculty (assistant, associate, or full professor levels) in atmospheric dynamics, climate dynamics, atmospheric radiation, atmospheric chemistry, boundary layer processes, or cloud processes. Maintain strong mentoring program for new assistant professors
- Conduct thorough promotion and tenure exercises annually; discuss results with faculty members and, if needed, recommend areas of improvement
- Increase RI support to 8 months for all faculty

1 Author: Jeff Collett
• Carefully plan transitional retirements to the mutual benefit of the Department and faculty members involved
• Maintain an annual merit salary program
• Seek salary increment for department faculty to move toward equity with other college faculty
• Recommend faculty for awards, fellow appointments

Metrics (Targets):

• New hires (2-3 in Fall 2012)
• Mentors (two per assistant professor; one meeting per month)
• Promotion and tenure meetings (one each Fall)
• RI support level (8 mo. for all faculty by 2014)
• Transitional retirements (at least three successfully planned in next five years)
• Equity salary increases
• Merit salary increases
• Awards, fellow appointments

Goal: Enhance, revitalize curriculum to meet current and future needs of Department

Strategies:
• Restructure curriculum; group courses by new, challenging, and societally relevant sub-disciplines
• Eliminate outmoded courses; develop new courses

Metrics (Targets):

• Revised curriculum structure (implementation 2011-12 AY)
• Course eliminations/additions (completion in current and next AY)

Goal: Maintain high level of (i) MS, PhD productivity and (ii) quality of graduates and graduate research

Strategies:
• Encourage continued vigorous program of extramural support
• Maintain proper balance of research staff to graduate student support
• Recruit and admit highest quality graduate students
• Maintain high GRA acceptance/offer ratio
• Streamline the recruiting process by making applicant files securely available online to faculty

Metrics (Targets):

• Extramural funding levels (~$800K annual average per faculty member)
• GRA/research staff ratio (maintain average of 5-6 advisees per faculty member)
• Quality of applicants/admitted students (multiple acceptances by top students; 3-5 fellowships)
• National awards, faculty appointments of alumni
• GRA acceptance/offer ratio (maintain near 65%)
• New online system improvements (complete and implement by December 2011)

Research and Discovery

Objective: To foster excellence in research and scholarship; enhance discovery through graduate student participation; and focus research in key areas of institutional strength and societal and global needs.

Goal: Maintain highest-quality research; address problems having significant societal impact

Strategies:

• Recruit and retain outstanding faculty, students, and staff
• Foster creative, productive research environment
• Encourage publication of all MS theses and PhD dissertations
• Promote and enhance research collaborations between ATS, CIRA, CMMAP, and the College; and research interactions with groups outside Engineering
• Encourage collaborations with international partners
• Define and pursue problems of national and global significance

Metrics (Targets):

• Department ranking (maintain position at or near top in world)
• Citations (300 per faculty member per year average)
• Publications (all theses and dissertations)
• Student fellowships (3-5 per year per new student class)
• Awards (multiple society awards, fellow selections per year)
• Joint proposals with non-ATS groups (10 or more per year)
• International collaborations (3-4 field projects, joint research activities per year)

Outreach and Engagement

Objective: To engage citizens through community involvement as well as to prepare and empower learners outside the campus environment.

Goal: Maintain/promote existing outreach programs, foster new outreach activities

Strategies:
• Support/encourage CMMAP, NASA Mission, CHILL, Colorado Climate Center, and other Department outreach programs
• Support continued growth of CoCoRAHS
• Provide continued service as information outlet for University, City, State, and Nation on climate, climate change, air quality, and extreme weather

Metrics (Targets):

• Numbers/effectiveness of outreach programs (sustain/improve)
• Impact of outreach efforts as determined by news stories, media reports, surveys (positive impact)
• CoCoRAHS growth (new NSF/NOAA support; 25% increase in next 3 years)
• Media inquiries on weather, air quality, and climate (improve coordination of response)

Resources and Support

Objective: To enhance, broaden, and improve the efficiency of the financial, administrative, and facility support for the Department

Goal: Streamline/optimize new central administrative support structure to better meet faculty needs, to meet University, College of Engineering, and federal requirements, and to integrate better within the College of Engineering administrative structure

Strategy:

• Seek ways to improve service to faculty, students, and staff through increased training and cross-training of employees
• Integrate department staff within COE administration to assure adequate internal controls
• Increase interaction of department and college administrative support staff to provide improved service and better efficiencies through improved training and cross-training and enhanced coordination
• Conduct ongoing evaluation of new structure in 2011-12 AY; work with the central COE to make revisions and improvements as needed

Metrics (Targets):

• Adequate internal controls are in place
• All staff have adequate training
• Cross-training exists within staff to provide quality, efficient service in cases of absence or turnover
• Compliance issues related to contract and grant administration are enforced
• Numbers/timeliness/effectiveness of proposals processed, post-award support (meet faculty/staff requirements)
• Numbers/timeliness/effectiveness of travel, purchasing actions (meet demands)
• Numbers of proposal opportunities missed due to delays (none)
• Faculty/administration satisfaction (positive)
• C&G administrators will have a dual reporting line to the assistant dean for operations’ unit through the department business operations manager.

Goal: Improve facilities support for Engineering Foothills Campus

Strategy:

• Work with College to recruit and support new staff to establish and begin operation of facilities support team for Foothills Campus

Metrics (Targets):

• Implementation of strategic plan for foothills campus support (Refer to Chapter 9H: Foothills Campus Support and Development)

Diversity

Objective: To promote an environment that encourages excellence, access, and inclusion.

Goal: Continue to grow representation of minorities and women on faculty, student population, and research staff

Strategies:

• Actively recruit minorities and women to open faculty positions
• Actively recruit women and minorities for AP scientific staff openings
• Continue/enhance ATS diversity programs in CMAP, department outreach to Morehouse College, collaboration with SOARS, AGEP fellowships and commitment of department funding

Metrics (Targets):

• Increase numbers of women and minority students within graduate student population
• Graduation rate of minority and female students (at M.S. and Ph.D.) is equal to that of majority male students
• Increased representation of female and minority faculty (Target: the faculty reflects the availability of women and minorities among atmospheric science Ph.D. graduates nationally)
• Ensure appropriate representation of females and minorities among postdocs and AP scientific staff (Target: the numbers reflect the availability of women and minorities among atmospheric science Ph.D. graduates nationally)
• Number and productivity of outreach programs (increase and evaluate)
• Assessments of satisfaction of underrepresented groups with diversity programs in ATS (evaluate annually and improve, as needed)